

*Abstract*

The present invention concerns the discovery that proteins encoded by a family of vertebrate genes, termed here *hedgehog*-related genes, comprise morphogenic signals produced by embryonic patterning centers, and are involved in the formation of ordered spatial arrangements of differentiated tissues in vertebrates. The present invention makes available compositions and methods that can be utilized, for example to generate and/or maintain an array of different vertebrate tissue both *in vitro* and *in vivo*.

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